application notes

HP OpenView Storage Management Appliance software

Using backup software

Product Version: 2.1

Fifth Edition (March 2005)

Part Number: AA-RU6FE-TE

This document describes how to install and use optional applications to back up and restore the HP OpenView Storage Management Appliance data and configuration files running software 2.1.

Additional information and HP OpenView documentation are available at http://h18006.www1.hp.com/products/sanworks/managementappliance/index.html.

Storage Management Appliance software
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About this document

This document explains how to install and use supported versions of the following backup software products on the HP OpenView Storage Management Appliance (SMA):

HP recommends use of the above applications to back up SMA data and configuration files.

Intended audience

This document is intended for customers running the Storage Management Appliance software 2.1. It has been developed for storage and system administrators who are experienced with the following:

- Managing storage area networks (SANs)
- Operating a Storage Management Appliance

This document also assumes users are familiar with their selected backup product.

Note: For information on using backup products with version 2.0 of the HP OpenView Storage Management Appliance software, refer to *HP OpenView Storage Management Appliance software installing antivirus and backup software application notes*, available on the HP web site.

Related documentation

Refer to the following documentation for more information about the Storage Management Appliance software:

- *HP OpenView Storage Management Appliance software using antivirus software application notes*
- *HP OpenView Storage Management Appliance software update installation card*
- *HP OpenView Storage Management Appliance software user guide*
- *HP OpenView Storage Management Appliance software release notes*
- HP OpenView Storage Management Appliance software online help

Additional information, including white papers and best practices documents, is available from the HP web site at http://h18006.www1.hp.com/products/sanworks/managementappliance/documentation.html.

Introduction

After installing the HP OpenView Storage Management Appliance (SMA) software 2.1, you can optionally install and use backup and restore applications on the SMA.

HP supports only the following qualified applications with the SMA software 2.1:

- HP OpenView Storage Data Protector 5.0, 5.1, and 5.5
- Veritas NetBackup Client 4.5 and 5.0
- Veritas Backup Exec 8.6, 9.0, 9.1, and 10.0
- Legato NetWorker 6.2
- CommVault Galaxy 4.2.0, 5.0, and 5.9.0
- Symantec Ghost Corporate Edition 7.5 and 8.0

Note: Symantec Ghost is supported for backing up and restoring the SMA. However, HP does not support installing the Ghost software locally on the SMA. For more information, see "Symantec Ghost Corporate Edition 7.5 and 8.0" on page 23.

This document provides instructions for using the above applications to back up and restore SMA software 2.1 data and configuration files.

Instructions for using backup software with version 2.0 of the Storage Management Appliance software are documented in *HP OpenView Storage Management Appliance software installing antivirus and backup software application notes*, available at http://h18006.www1.hp.com/products/sanworks/managementappliance/documentation.html.

The next section contains general procedures that you can use with most of the backup software products. See the product sections in "Supported backup and restore products" beginning on page 11 for specific instructions on installing and running each application on the SMA.

Common operations for installing and using backup and restore applications

This section describes several of the common operations you will perform when installing most of the supported backup and restore applications.

Note: The common operations described in this section are not required for Symantec Ghost.

Getting started

You can install most of the applications described in this document directly on the Storage Management Appliance using Microsoft Terminal Services. You can also install some of the applications remotely from a workstation. Whether you install the applications directly or remotely, you must first install the Terminal Services client on your workstation. By default, the SMA has Terminal Services turned on. See the Microsoft website, http://www.microsoft.com/windows2000/technologies/terminal, for more information on installing and using the Terminal Services client.

To run the application's setup program directly on the Storage Management Appliance, either insert the CD with the setup program in the SMA's CD-ROM drive, or specify the path to the setup program. If you are using a mapped network drive, you must specify the complete uniform naming convention (UNC) path for the setup program. If you do not, you might receive the error noted below during the installation.

Note: If you run the setup program from a mapped network drive, you might receive the following error: **Internal Error 2755.3,** *path\filename.msi*.
Microsoft documents this as a known bug in Knowledge Base article Q255582.
See http://support.microsoft.com/default.aspx?scid=kb;en-us;Q255582 for more details.

For further instructions on direct and remote installations, see the appropriate product sections in this document.

Enabling file and printer sharing

The installation procedures for most of the backup products require that file and printer sharing be enabled on the Storage Management Appliance.

To enable file and printer sharing using the SMA software:

1. On the SMA software primary navigation bar, click **Settings**.
2. Click **Network**, and then click **File and Printer Sharing**.

   The File and Printer Sharing page opens.
3. Click the check box to enable file and printer sharing.
4. Click **OK**.

   File and printer sharing is enabled.

Caution: When file and printer sharing is enabled, the Storage Management Appliance can be vulnerable to improper copying or deleting of files. Therefore, after enabling file and printer sharing on the SMA, maintain security by:

- Setting appropriate security policies on shared files or printers
- Turning file and printer sharing off when the supported tasks are complete

Stopping and starting applications

Before you perform a backup or restore operation, you must stop all applications on the Storage Management Appliance. After a backup or restore operation is complete, you must restart all applications. If the operation requires a reboot, you do not need to restart all applications.

The Storage Management Appliance software 2.1 includes batch files that stop and start all applications. The `StopAllApps.bat` and `StartAllApps.bat` batch files are stored in the following directory on the SMA with the associated VBscript files `AllAppsStop.vbs` and `AllAppsStart.vbs`:

```
C:\Program Files\Compaq\SANworks\OSM
```

These batch files create log files (`StopAllApps.log` and `StartAllApps.log`) as output in the `C:\OSMLogs` directory every time they run.

You can stop and start the applications manually or by using the Windows Scheduled Tasks feature. The following sections describe these two methods.

Stopping and starting applications manually

To stop all applications manually, run `StopAllApps.bat` on the Storage Management Appliance.

To start all applications manually, run `StartAllApps.bat` on the Storage Management Appliance.

Scheduling application stop and start times

You can schedule the `StopAllApps.bat` file to stop all applications before running a scheduled backup or restore operation. You can schedule the `StartAllApps.bat` file to run after the backup or restore operation is complete. This allows you to run backup and restore operations unattended (for example, during off-hours).

Note: Only a Storage Management Appliance administrator can schedule these batch files to run.

To schedule a stop or start task:

1. Log on to the Storage Management Appliance using Terminal Services.
2. Start the Scheduled Tasks wizard (**Start > Programs > Accessories > System Tools > Scheduled Tasks**).
3. Double-click **Add Scheduled Task**, and then click **Next** on the first page of the Scheduled Tasks wizard.
4. Click **Browse** and navigate to the directory where the batch files are installed (`C:\Program Files\Compaq\SANworks\OSM`), and then select `StopAllApps.bat` or `StartAllApps.bat`, as applicable.
5. Enter a task name and choose how often you want to run the task, and then click **Next**.
6. Specify the exact time you want to run this task, and then click **Next**.
7. Enter the logon information for the Storage Management Appliance administrator account, and then click **Next**.
8. Click **Finish** on the Scheduled Tasks wizard summary page.

   The stop or start task is set to run as scheduled.

Backing up the Storage Management Appliance

Before initiating a backup, make sure you stop all applications on the Storage Management Appliance. Use your choice of the supported applications to perform the backup, referring to the backup product's documentation, as well as the appropriate product section in this document. After the backup is complete, be sure to restart all applications on the Storage Management Appliance. See "Stopping and starting applications" on page 6 for more information.

Note: HP recommends that you run backup operations during off-hours.

Restoring the Storage Management Appliance

There are three scenarios for restoring the Storage Management Appliance:

- Restoring a running Storage Management Appliance
- Recovering a failed Storage Management Appliance
- Recovering or migrating to a different Storage Management Appliance

Restoring a running Storage Management Appliance

To restore a Storage Management Appliance that is running, follow the instructions in the backup product's documentation and the appropriate product section in this document. Be sure to stop all applications on the Storage Management Appliance before the restore and to restart all applications after the restore. See "Stopping and starting applications" on page 6 for more information.

Recovering a failed Storage Management Appliance

This section provides instructions for recovering a Storage Management Appliance that has failed and is not running. This procedure assumes that you are using the Storage Management Appliance software version 2.1 and that you have the appropriate version of the Storage Management Appliance Quick Restore CD for restoring your SMA to the 2.1 software level. You can order the necessary Quick Restore CD from the following web site: http://h18006.www1.hp.com/products/sanworks/softwaredrivers/managementappliance.

If you are using earlier versions of both the Storage Management Appliance software and the Quick Restore CD, refer to *HP OpenView Storage Management Appliance software installing antivirus and backup software application notes*, available from the following web site: http://h18006.www1.hp.com/products/sanworks/managementappliance/documentation.html.

If you have a backup image of your entire SMA system, you can use the image to restore a failed SMA instead of using the recovery procedure described in this section. See "Symantec Ghost Corporate Edition 7.5 and 8.0" on page 23 for more information.

To recover a failed SMA:

1. Before you can restore from a backup, you must restore the Storage Management Appliance software to version 2.1 using the Storage Management Appliance Quick Restore CD that corresponds to your SMA hardware (Appliance I, II, or III).
2. Install your backup software. Be sure to enable file and printer sharing on the SMA. See "Enabling file and printer sharing" on page 6 for more information.
3. Stop all applications on the SMA. See "Stopping and starting applications" on page 6.
4. After you complete steps 1 through 3, restore the SMA using the backup data. Follow the instructions in your backup software documentation and the appropriate product section in this document.
5. Reboot the SMA. This restarts all applications.

Recovering or migrating to a different Storage Management Appliance

You can transfer backup data from one SMA to another. You might want to do this if you are setting up a new SMA.

The prerequisites for migrating data between two SMAs are as follows:

- Storage Management Appliance software 2.1 must be installed on both SMAs
- You must have a valid backup of the SMA with software 2.1 installed

Caution: If the SMA fails before you have installed 2.1 of the software, you will not be able to migrate data to a new SMA running software 2.1. HP strongly recommends you upgrade the SMA software to version 2.1 as soon as possible.

To migrate from one SMA to another:

1. Disconnect the current SMA from the SAN.
2. Install the new SMA hardware and connect the host bus adapters (HBAs) from the new SMA to the SAN.
3. Use the Storage Management Appliance Quick Restore CD that corresponds to your SMA hardware (Appliance I, II, or III) to restore the new SMA to version 2.1.
4. If required, configure TCP/IP network settings (IP, Default Gateway, DNS, WINS).
5. Rename the new SMA using the name of the SMA you are replacing.
6. Reboot the SMA after renaming it.
7. Install your backup software. Be sure to enable file and printer sharing on the SMA. See "Enabling file and printer sharing" on page 6 for more information.
8. Stop all applications on the SMA. See "Stopping and starting applications" on page 6 for more information.
9. After you complete steps 1 through 8, restore the SMA using the backup data. Follow the instructions in your backup software documentation and the appropriate product section in this document.

Caution: Note that the Appliance I and II have smaller-capacity hard drives than the Appliance III. If you transfer a large amount of data from an Appliance III to an earlier SMA, the operation might not complete successfully.

10. Reboot the SMA. This restarts all applications.

    After the reboot, the new SMA has the same configuration as the SMA that you replaced.

Errors during backup or restore operations

HP recommends that you use the backup applications described in this document to back up SMA data and configuration files.

When using any of the supported applications, you might receive warning or error messages that open or locked files were not backed up or restored. In most cases, it is safe to ignore such messages because they do not pertain to SMA data or configuration files. To determine if SMA files are affected, examine the backup or restore log and check for errors in any of the following files:

```
C:\winnt\system32\client.ini
C:\winnt\system32\steam.cfg
C:\winnt\system32\nu_data.txt
C:\winnt\system32\HSGEvents1.DAT
C:\winnt\system32\HSGEvents2.DAT
```

as well as in files residing in any of the following directories or their subdirectories:

```
C:\log\
C:\Compaq\
C:\cpqsystem\log\
C:\filestore\
C:\HSG80s\
C:\hsvmafiles\
C:\mssql7\data\
C:\mssql7\log\
C:\mysql\data\
C:\SANWorks Storage License Manager\
C:\Program Files\Compaq\SANworks\
C:\Program Files\Microsoft SQL Server\MSSQL\Data\
C:\Program Files\Microsoft SQL Server\MSSQL\Log\
C:\Program Files\Hewlett-Packard\sanmgr\managementserver\db\backup\
```

If the operation issues warnings or errors about these files or about files located in any of these directories or their subdirectories, contact HP Technical Support. Telephone numbers for worldwide technical support are listed on the following HP web site: http://www.hp.com/support/.

Supported backup and restore products

The sections that follow provide detailed instructions for installing and using the supported backup and restore products on the Storage Management Appliance. These instructions assume you are familiar with the procedures described in "Common operations for installing and using backup and restore applications" on page 5 and with general operations for your backup application. Refer to the application's documentation for more information.

HP OpenView Storage Data Protector 5.0, 5.1, and 5.5

You can use Data Protector 5.0, 5.1, or 5.5 to back up SMA data and configuration files on an existing Data Protector server.

Installing Data Protector

This section describes how to install the Data Protector client software on the SMA. File and printer sharing must be enabled on the SMA before you install the software. See "Enabling file and printer sharing" on page 6 for more information.

To install the Data Protector client software:

1. Using Data Protector Manager on the server, right-click **Clients** and select **Add Clients**.
2. Enter the name of the SMA, click **Add**, and then click **Next**.
3. On the **Components** tab, choose the component you want to install.
4. On the **Options** tab, enter the user account information, and then click **Finish** to start the installation.

Backing up the Storage Management Appliance

After successful installation of the Data Protector client on the Storage Management Appliance, you can use Data Protector Manager on the server to back up and restore SMA data and configuration files. Refer to the HP OpenView Storage Data Protector documentation for detailed instructions.

The following procedure contains important additional information for using Data Protector to back up SMA data and configuration files:

1. Log on to the SMA using Terminal Services.
2. Stop all applications on the SMA. See "Stopping and starting applications" on page 6.
3. On the Data Protector server, under **Devices & Media**, specify the device on which you want to back up the SMA data and configuration files.
4. If required, format the device to a minimum size of 4 GB.
5. In the **Backup** pane, right-click the type of item (for example, **Filesystem)**, and then click **Add Backup**.
6. Choose the name of the SMA that you want to back up.
7. Choose the following options:
   - **C:**
   - **CONFIGURATION:**

8. Choose the device and media on which you want to store the backup image.
9. Start the Data Protector backup operation.

   If you receive warnings about locked files during the backup, you can exclude the specified objects from the backup by using the **Exclude** option. See the Storage Data Protector online help for instructions.
10. After the backup operation is complete, restart all applications on the SMA. See "Stopping and starting applications" on page 6.

Restoring the Storage Management Appliance

Refer to the HP OpenView Storage Data Protector documentation for detailed instructions on restoring the Storage Management Appliance.

The following procedure contains important additional information for using Data Protector to restore the SMA:

1. Log on to the SMA using Terminal Services.
2. Stop all applications on the SMA. See "Stopping and starting applications" on page 6.
3. Choose **Restore** in the main Data Protector server window.
4. Choose the SMA backup you want to use from the list of file systems.
5. Right-click the SMA entry, and then click **Properties**.
6. Make sure that the following options are selected:
   - **C:**
   - **CONFIGURATION:**
7. Click the **Destination** tab, and then choose **Overwrite** as the File Conflict Handling option.
8. Use the **Devices** and **Media** tabs to choose the device and media on which the backup image is stored.
9. Start the Data Protector restore operation.
10. Choose **All selected objects (parallel restore)** in the **Start Restore Session** dialog box.
11. Continue with the restore operation until it is complete.

Note: You can safely ignore minor errors that might occur while restoring system files.

---

12. Reboot the SMA after the restore operation is complete. This restarts all applications.

The Storage Management Appliance software 2.1 includes a batch file that re-establishes security and user settings after the restore operation is complete. The *PostRestoreMigrate.bat* batch file is stored in the following directory on the SMA:

```
C:\Program Files\Compaq\SANworks\OSM
```

After the restore operation is complete, run the batch file by using the following command:

```
postrestoremigrate.bat appliancename
```

(*appliancename* is the name of the backed-up SMA)

Veritas NetBackup Client 4.5 and 5.0

Use the Veritas NetBackup 4.5 or 5.0 client to back up SMA data and configuration files on an existing NetBackup server.

Installing the NetBackup Client

This section describes how to install the NetBackup client software on the SMA. File and printer sharing must be enabled on the SMA before you install the software. See "Enabling file and printer sharing" on page 6 for more information.

To install the NetBackup client software:

1. Log on to the SMA using Terminal Services.
2. Run the NetBackup setup program.
3. In the main window, choose **NetBackup Installation**, and then click **Start NetBackup Client Installation** to launch the installation wizard.
4. Choose **Install to this computer only** for the **NetBackup Installation Type**, and then click **Next**.
5. Choose **Typical** for the **Setup Type**, and then click **Next**.
6. Enter the name of the master server on which the NetBackup server application is installed, and then click **Next**.
7. Click **Install** to start the installation process.

Backing up the Storage Management Appliance

After successful installation of the NetBackup client software on the Storage Management Appliance, use the NetBackup server to back up and restore SMA data and configuration files. Refer to the Veritas NetBackup documentation for detailed instructions.

The following procedure contains important additional information for using NetBackup to back up SMA data and configuration files:

1. Log on to the SMA using Terminal Services.
2. Stop all applications on the SMA. See "Stopping and starting applications" on page 6.
3. Select **Backup, Archive, and Restore** on the SMA.
4. Click **Select for Backup**, and then choose the following options:
   - **C**
   - **System_State**
5. Start the NetBackup backup operation.
6. After the backup operation is complete, restart all applications on the SMA. See "Stopping and starting applications" on page 6.

Restoring the Storage Management Appliance

Refer to the Veritas NetBackup documentation for detailed instructions on restoring the Storage Management Appliance.

The following procedure contains important additional information for using NetBackup to restore the SMA:

1. Log on to the SMA using Terminal Services.
2. Stop all applications on the SMA. See "Stopping and starting applications" on page 6.
3. Select **Backup, Archive, and Restore** on the SMA.
4. Click **Select for Restore**, and then choose the backup you want to use.
5. Choose the following options:
   - **C**
   - **System_State**
6. When prompted, choose the option to overwrite existing files.
7. Start the NetBackup restore operation.
8. Reboot the SMA after the restore operation is complete. This restarts all applications.

Veritas Backup Exec 8.6

You can use the Veritas Backup Exec 8.6 Remote Agent for Windows NT/2000 to back up SMA data and configuration files on an existing Backup Exec server. This section provides information about installing and using Veritas Backup Exec 8.6. For information about Veritas Backup Exec 9.0, 9.1, and 10.0, go to page 17.

Installing the Backup Exec Remote Agent

This section describes how to install the Backup Exec Remote Agent application on the SMA. File and printer sharing must be enabled on the SMA before you install the application. See "Enabling file and printer sharing" on page 6 for more information.

To install the Backup Exec Remote Agent:

1. Select **Start > Settings > Control Panel > Add/Remove Programs** on the Backup Exec server.
2. Select **Veritas Backup Exec v8.x**, and then click **Change/Remove**.
3. Select **Install Additional Options**, and then click **Continue**.
4. Click the button for **Install Backup Exec Options on Remote computers**.
5. Enter the required serial numbers for the product, and then click **Continue**.
6. Select **Remote Agent for Windows NT/2000**.
7. Select the domain name where the SMA is located, if listed. If that domain is not shown, select **Manually enter domains** and then enter the domain name.

   Your network environment may or may not allow the application to display the SMA in a list of systems in the specified domain.

   For example, if the Backup Exec server is in domain A and the SMA is in domain WORKGROUP, when you select or enter WORKGROUP, you may not see any listed systems. In this case, select **Manually add additional systems** and add the appliance name using the following format: `\\WORKGROUP\appliancename`.
8. Enter the logon information the Backup Exec server must use to access the SMA and click **Next** to install the Remote Agent.

   The Remote Agent is installed on the SMA.

Backing up the Storage Management Appliance

After successful installation of the Backup Exec Remote Agent software on the Storage Management Appliance, use the Backup Exec server application to back up and restore SMA data and configuration files. Refer to the Veritas Backup Exec documentation for detailed instructions.

The following procedure contains important additional information for using Backup Exec to back up SMA data and configuration files:

1. Log on to the SMA using Terminal Services.
2. Stop all applications on the SMA. See "Stopping and starting applications" on page 6.
3. Open the Backup Exec server main window.
4. Select **Network > User-defined Selection** on the **Backup Selections** tab.
5. Enter the SMA name in the UNC Name box, and click **Add**.
6. In the main window, select the SMA entry under Remote Selections/User Defined Selections.

7. Select **Network > Set Default Attach Info**.
8. Specify the administrator's user name and password for the SMA, and click **Save**.
9. In the main window, under the SMA entry, select the following options:
   - **C$**
   - **System State**
10. Start the backup.
11. After the backup operation, restart all the applications on the SMA. See "Stopping and starting applications" on page 6.

Restoring the Storage Management Appliance

Refer to the Veritas Backup Exec documentation for detailed instructions on restoring the Storage Management Appliance.

The following procedure contains important additional information for using Backup Exec to restore the SMA:

1. Log on to the SMA using Terminal Services.
2. Stop all applications on the SMA (see "Stopping and starting applications" on page 6).
3. Open the Backup Exec server main window.
4. Click the SMA entry on the **Restore Selections** tab.
   - Under the **C$** entry, select the backup you want to use.
   - Under the **System State** entry, select the backup you want to use.
5. Start the restore operation.

   The Restore Job Properties dialog box opens.
6. Select the following options on the **General** tab:
   - **Restore Windows NT Registry**
   - **Restore security**
   - **Preserve tree**
7. Select **Restore over existing files** on the **Advanced** tab.

   If you see a warning message on the SMA stating that protected files have been overwritten, click **Cancel**.
8. Reboot the SMA after the restore operation is complete. This restarts all applications.

Veritas Backup Exec 9.0, 9.1, and 10.0

You can use the Veritas Backup Exec 9.0, 9.1, or 10.0 Remote Agent for Windows NT/2000 to back up SMA data and configuration files on an existing Backup Exec server. This section provides information about installing and using Veritas Backup Exec 9.0, 9.1, and 10.0. For information about Veritas Backup Exec 8.6, go to page 15.

Installing the Backup Exec Remote Agent

This section describes how to install the Backup Exec Remote Agent application on the SMA. File and printer sharing must be enabled on the SMA before you install the application. See "Enabling file and printer sharing" on page 6 for more information.

To install the Backup Exec Remote Agent:

1. Follow the procedure for installing a remote agent, as described in the Backup Exec documentation.
2. When prompted for a computer name, specify the name of the SMA.
3. If the SMA is in a domain, specify the domain name.
4. When prompted for logon credentials, specify the user name and password of an SMA administrator.
5. Continue with the Backup Exec Remote Agent installation until it is complete.

Backing up the Storage Management Appliance

After successful installation of the Backup Exec Remote Agent software on the Storage Management Appliance, use the Backup Exec server application to back up and restore SMA data and configuration files. Refer to the Veritas Backup Exec documentation for detailed instructions.

The following procedure contains important additional information for using Backup Exec to back up SMA data and configuration files:

1. Log on to the SMA using Terminal Services.
2. Stop all applications on the SMA. See "Stopping and starting applications" on page 6.
3. Open the Backup Exec server main window.
4. Click **Backup** on the navigation bar.
5. Expand **Remote Selections**.
6. Right-click **User-defined Selections**, and then click **User-defined Selections**.
7. Specify the SMA name in the UNC Name box.
8. Click **Add**, and then click **Close**.
9. In the main window, select the SMA name under Remote Selections > User Defined Selections.

   The Logon Account Selection dialog box opens.
10. Click **New**.

    The Add Logon Credentials dialog box opens.
11. Specify the administrator's user name and password for the SMA, and then click **OK**.

12. In the main window, under the SMA entry, choose the following options:
    - **C:**
    - **System State**
13. Select **Destination > Devices and Media**, and then specify the media you want to use for the backup.
14. Click **Run now** to start the backup operation.
15. After the backup operation is complete, restart all applications on the SMA. See "Stopping and starting applications" on page 6.

Note: If you rebuild the Storage Management Appliance as part of a disaster recovery, you must delete the SMA entry from the **Backup Selections** tab and add it again, following step 4 through step 11 on page 17. Otherwise, the backup and restore operations will not work.

Restoring the Storage Management Appliance

Refer to the Veritas Backup Exec documentation for detailed instructions on restoring the Storage Management Appliance.

The following procedure contains important additional information for using Backup Exec to restore the SMA:

1. Log on to the SMA using Terminal Services.
2. Stop all applications on the SMA. See "Stopping and starting applications" on page 6.
3. Open the Backup Exec server main window.
4. Click **Restore** on the navigation bar.
5. Choose the SMA entry.
    - Under the **C:** entry, choose the backup you want to use.
    - Under the **System State** entry, choose the backup you want to use.
6. Select **Settings > General,** and then choose the following options:
    - **Restore over existing files**
    - **Restore security**
    - **Preserve tree**
7. If you have multiple client resources, you need to specify the resource that you want to restore to. Perform the following steps only if you have multiple resources:
    a. Select **Source > Resource Credentials**, and then click **Change**.
    b. Choose the logon account for the resource you are restoring to, and then click **OK**.
8. Select **Settings > Advanced**, and then select **Restore Windows NT 4.0 Registry**.
9. Click **Run now** to start the restore operation.
10. Reboot the SMA after the restore operation is complete. This restarts all applications.

Legato NetWorker 6.2

You can use Legato NetWorker 6.2 to back up SMA data and configuration files on an existing NetWorker server.

Installing NetWorker

This section describes how to install the NetWorker client software on the SMA. File and printer sharing must be enabled on the SMA before you install the software. See "Enabling file and printer sharing" on page 6 for more information.

To install the NetWorker client software:

1. Log on to the SMA using Terminal Services.
2. Run the NetWorker setup program from the network share on which the NetWorker server is installed.
3. Select **Client** for the **Type of Setup** and specify the name of the server that will back up SMA data and configuration files.
4. Follow the installation wizard instructions and accept the default values for all options.
5. Register the SMA with the server. Start the NetWorker Administrator program on the server and follow the NetWorker Wizard instructions to complete the registration process. (Start the NetWorker Wizard by clicking the wand button on the main window toolbar.)

Backing up the Storage Management Appliance

After successful installation of the NetWorker software on the Storage Management Appliance, use the NetWorker User application to back up and restore SMA data and configuration files. Refer to the Legato NetWorker documentation for detailed instructions.

The following procedure contains important additional information for using NetWorker to back up SMA data and configuration files:

1. Log on to the SMA using Terminal Services.
2. Stop all applications on the SMA. See "Stopping and starting applications" on page 6.
3. Run **NetWorker User** on the SMA.
4. Click **Backup**, and then choose the following options:
   - **Local Disk (C:)**
   - **SYSTEM DB:**
   - **SYSTEM FILES:**
   - **SYSTEM STATE:**
5. Start the NetWorker backup operation.
6. After the backup operation is complete, restart all applications on the SMA. See "Stopping and starting applications" on page 6.

Restoring the Storage Management Appliance

Refer to the Legato NetWorker documentation for detailed instructions on restoring the Storage Management Appliance.

The following procedure contains important additional information for using NetWorker to restore the SMA:

1. Log on to the SMA using Terminal Services.
2. Stop all applications on the SMA. See "Stopping and starting applications" on page 6.
3. Run **NetWorker User** on the SMA.
4. Click **Recover**, and then choose the following options:
   - **Local Disk (C:)**
   - **SYSTEM DB:**
   - **SYSTEM FILES:**
   - **SYSTEM STATE:**
5. When prompted, choose the option to overwrite existing files.
6. Start the NetWorker restore operation.
7. Reboot the SMA after the restore operation is complete. This restarts all applications.

CommVault Galaxy 4.2.0, 5.0, and 5.9.0

Use CommVault Galaxy 4.2.0, 5.0, or 5.9.0 to back up SMA data and configuration files on an existing CommVault server (CommServe).

Installing CommVault Galaxy iDataAgent for Windows 2000

Before performing backups and restores with the CommVault Galaxy software, you must install the iDataAgent for Windows 2000 software on the SMA. File and printer sharing must be enabled on the SMA before you install the software. See "Enabling file and printer sharing" on page 6 for more information.

To install the iDataAgent software:

1. Log on to the SMA using Terminal Services.
2. Start the CommVault Galaxy setup program by running *setup.exe*.
3. From the main window, do one of the following:
   - For 4.2.0, select **QiNetix 4.2.0 > Client Modules > iDataAgents > iDA for Windows 2000**, and then click **Next**.
   - For 5.0, select **QiNetix 5.0.0 > Client Modules > iDataAgents > iDA for Windows 2000**, and then click **Next**.
   - For 5.9.0, select **QiNetix 5.9.0 > Client Modules > iDataAgents > iDA for Windows 2000**, and then click **Next**.
4. Continue with the Windows 2000 iDataAgent installation until it is complete. Refer to the instructions for installing the iData Agent in the *CommVault Galaxy Client Installation and Administration Guide (Windows File Systems)*.

Backing up the Storage Management Appliance

After successful installation of the iDataAgent software on the Storage Management Appliance, you can use CommServe to back up and restore the SMA data and configuration files. Refer to the CommVault Galaxy documentation for detailed instructions.

The following procedure contains important additional information for using CommServe to back up SMA data and configuration files:

1. Log on to the SMA using Terminal Services.
2. Stop all applications on the SMA. See "Stopping and starting applications" on page 6.
3. Connect to the CommVault Cell Console.
4. Perform a backup of the SMA file system. Refer to the procedures for a full backup of the default backup set in the *CommVault Galaxy Client Installation and Administration Guide (Windows File Systems)*.
5. After the backup operation is complete, restart all applications on the SMA. See "Stopping and starting applications" on page 6.

Restoring the Storage Management Appliance

Refer to the CommVault Galaxy documentation for detailed instructions on restoring the Storage Management Appliance.

The following procedure contains important additional information for using CommVault to restore the SMA:

1. Log on to the SMA using Terminal Services.
2. Stop all applications on the SMA. See "Stopping and starting applications" on page 6.
3. Connect to the CommVault Cell Console.
4. Perform a full iDataAgent restore for a non-domain controller for Windows 2000 on the SMA. Refer to Appendix C of the *CommVault Galaxy Client Installation and Administration Guide (Windows File Systems)* for more information.

   The SMA restarts automatically.

Symantec Ghost Corporate Edition 7.5 and 8.0

Use Symantec Ghost Corporate Edition 7.5 or 8.0 to create an image (clone) of your entire Storage Management Appliance system. You can save the clone on a network share and use it later to restore the SMA.

This section describes the HP-supported method for running the Ghost software by using a boot disk that maps a drive letter to a network share. This section assumes that you have already installed the Ghost software on a server. See the *Symantec Ghost Implementation Guide* and the Ghost online help for installation information.

Note: HP does not support installation of the Ghost software locally on the Storage Management Appliance.

The procedures described in "Common operations for installing and using backup and restore applications" on page 5 are not required for using Ghost with the SMA.

Creating a Ghost boot disk

Before using Ghost to clone the Storage Management Appliance, create a boot disk that you will use later to run the Ghost software. You use this boot disk with the SMA to create, save, and restore from a backup image.

1. Start the Symantec Ghost Boot Wizard on the server.
2. Create a Drive Mapping Boot Disk, following the instructions in the Ghost documentation.
3. Select the correct SMA network card driver from the list (for example, **Compaq N100 NDIS**). The SANworks Management Appliance (first generation) and the Storage Management Appliance II (second generation) use the N100 driver. The Storage Management Appliance III uses the Q57 driver.

   If the correct driver is not listed, see "Adding network drivers to the Ghost Boot Wizard" on page 24 for information on downloading the driver.
4. When prompted to select a version of DOS, select **PC DOS**.
5. Provide the SMA (client computer) name, authorized user name, domain, drive letter, and complete UNC path to the network share. (The network share is where you want to store the Ghost executable and image files.)
6. When prompted to select an IP option, select **DHCP will assign the IP settings**.
7. Insert a floppy disk in the floppy disk drive of the Ghost server.
8. Choose the floppy disk drive as the destination drive.
9. Format the floppy disk and continue creating the Ghost boot disk.
10. After you create the Ghost boot disk, label it.
11. Copy the `Ghost.exe` file to the network share you specified in step 5. The file is in the same directory as the Symantec software.

Adding network drivers to the Ghost Boot Wizard

If the Ghost Boot Wizard does not include the correct network driver, download the NDIS2 driver Softpaq 23497 to the Ghost server. This Softpaq contains network drivers for all versions of the SMA, which you can add to the Ghost Boot Wizard.

1. Download Softpaq 23497 from the following FTP location: ftp://ftp.compaq.com/pub/softpaq/sp23001-23500/SP23497.exe.
2. Save the self-extracting executable file in a directory on the Ghost server (for example, *C:\Compaq\SP23497*).
3. Extract the driver files from *sp23497.exe* in the same directory, following the on-screen instructions.
4. Start the Symantec Ghost Boot Wizard on the server.
5. Select **Drive Mapping Boot Disk**, and then click **Next**.
6. Click **Add**.
7. Select **NDIS2 Driver**, and then click **OK.**
8. Click **Setup** on the **NDIS Driver** tab.
9. Locate and choose the N100 or Q57 driver, depending on the SMA hardware version. For example, if you are using the SANworks Management Appliance or the Storage Management Appliance II, select `C:\Compaq\SP23497\DOS\NDIS2\N100`. If you are using the Storage Management Appliance III, select `C:\Compaq\SP23497\DOS\NDIS2\Q57`.
10. Click **OK**.
11. Enter a label for the new driver template, and then click **Next**.
12. Continue with step 4 on page 23.

Refer to the Ghost documentation for additional information.

Creating and saving a backup image of the Storage Management Appliance

Use the boot disk you created earlier and the following procedure to create and save a Ghost backup image of the SMA:

1. Attach a keyboard and monitor to the SMA.
2. Place the Ghost boot disk in the SMA floppy disk drive. See "Creating a Ghost boot disk" on page 23.
3. Restart the SMA.
4. When prompted, provide your domain user name and password.
5. Change to the drive where `Ghost.exe` is located.
6. Enter the following command:

   `ghost.exe` `-auto -cns -z9`

   This command allows you to create backup images with fast compression and without user intervention.

   Ghost opens in DOS mode. Use the keyboard to navigate the Ghost menus.
7. Select **Local > Disk > To Image**.
8. Specify the image file name and destination drive where the image will be stored.

9. Click **Save**.
10. Continue with the image file creation.
11. After the operation is complete, remove the floppy disk, detach the keyboard and monitor, and reboot the SMA.

After you reboot, the SMA is fully operational.

HP recommends that you create a backup image of the SMA every time you apply an update and when the system is stable.

Restoring from a backup image

Use the boot disk you created earlier and the following procedure to retrieve a Ghost backup image and restore the SMA:

1. Attach a keyboard and monitor to the SMA.
2. Place the Ghost boot disk in the SMA floppy disk drive. See "Creating a Ghost boot disk" on page 23.
3. Restart the SMA.
4. When prompted, provide your domain user name and password.
5. Change to the drive where `Ghost.exe` is located.
6. Enter the following command:

   `ghost.exe` `-auto`

   This command allows you to restore without user intervention.

   Ghost opens in DOS mode. Use the keyboard to navigate the Ghost menus.
7. Select **Local > Disk > From Image**.
8. Locate and choose the backup image file you want to use for the restore operation.
9. Continue with the restore operation.
10. After the operation is complete, remove the floppy disk, detach the keyboard and monitor, and reboot the SMA.